



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,932	12/18/2001	Erez Hasman	74/113	1490
7590	09/08/2004		EXAMINER	
DR. MARK FRIEDMAN LTD. C/o Bill Polkinghorn Discovery Dispatch 9003 Florin Way Upper Marlboro, MD 20772			ASSAF, FAYEZ G	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	10/017,932	
Examiner	HASMAN ET AL.	
Fayez G. Assaf	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply****A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 14 June 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 30,32,41-50,61,63 and 66 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-29,33-36,38-40,51-60,64 and 65 is/are rejected.
- 7) Claim(s) 31,37 and 62 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 January 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/18/2002</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election of Species 1: claims 1-29, 31, 33-40, 51-60, 62, 64 and 65 in the reply filed on 6/14/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Moshrefzadeh et al. (US 6,391,528 B1).

Regarding claims 1 and 7, Moshrefzadeh discloses an optical device, for manipulating incident light of at most a certain

Art Unit: 2872

maximum wavelength, comprising: (a) a substantially planar grating (see Fig. 2) including a plurality of electrically conducting metal stripes (line 4 to line 18 of Col. 5), and having a space-variant, continuous grating vector (due to chirp of the grating, line 35 to line 36 of Col. 7), at least a portion of said grating having a local period less than the maximum wavelength of the incident light (line 51 to line 55 of Col. 2).

Regarding claims 8 and 9, Moshrefzadeh discloses a glass substrate supporting said stripes (line 9 to line 24 of Col. 4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6, 10-29, 32-36, 38-40, 51-60, 62, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh.

Regarding claims 33, 36, 64 and 65, One of ordinary skill in the art appreciates the fact that the grating vector in the invention of Moshrefzadeh is divergent and non-rotating, which inherently requires the curl of the vector to be zero.

Regarding claims 2-6, 10-29, 33-36, 38, 51-60, 64 and 65, Moshrefzadeh discloses the claimed invention except for an explicit teaching with regard to the form of the grating vector: the magnitude or the direction of said grating vector varying laterally and continuously; said grating vector being periodic, rotationally periodic; laterally varying transmissivity of transmitted light; transmissivity varying periodically in one lateral dimension of transmitted light; laterally varying reflectivity; reflectivity varying periodically in one lateral dimension; transmitted beam having an azimuthal angle that varies linearly in one lateral dimension; transmitted beam being radially polarized; said radial polarization being in-phase/anti-phase; transmitted beam being azimuthally polarized; the reflected beam having a predetermined, laterally varying polarization state; the reflected beam being radially polarized; the transformed beam being substantially free of propagating orders higher than zero order ...etc.

However, determining the optimum workable value(s) of the grating vector for the intended use of the grating does not

serve as basis for patentability. The determination of such variable can be characterized as routine experimentation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrive at such mathematical descriptions of the grating vector, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to obtain such values of the grating vector in order to make a versatile grating which can be utilized in a variety of transmissive or reflective polarized devices.

In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

#### **Allowable Subject Matter**

Claims 31, 37 and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 31 and 62 are allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest the steps of (a) providing a beam of light; (b) imposing radial polarization on said beam of light, using the device of

Art Unit: 2872

claim 1 or 51, and (c) directing said radially polarized beam at the workpiece to cut the workpiece as set forth in the combination in each claim.

Claim 37 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest the wavenumber and the direction beta satisfying the recited equation as set forth in the claimed combination.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brueck et al. (US 5,343,292)

Perkins et al. (US 6,122,103)

Domash et al. (US 6,771,857 B1)

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye G. Assaf whose telephone number is (571) 272-2307. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the

Art Unit: 2872

organization where this application or proceeding is assigned is  
703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fayez G. Assaf  
Examiner  
Art Unit 2872

FA

8/30/04

Application/Control Number: 10/017,932

Art Unit: 2872

Page 8